UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,637	08/22/2003	Takao Tsuruoka	IPO-P1755	9783

3624 7590 09/26/2007

VOLPE AND KOENIG, P.C.
UNITED PLAZA, SUITE 1600
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER	
KHOKHAR, ASIF I	
ART UNIT	**PAPER NUMBER**
2622	

MAIL DATE	DELIVERY MODE
09/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/646,637	TSURUOKA, TAKAO	
	Examiner	Art Unit	
	Asif Khokhar	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *8-10,14,20,21 and 26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,15-19 and 27* is/are rejected.

7)☒ Claim(s) *11-13 and 23-25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of species I, claims 1-7, 11-13, 15-19, 23-25 and 27 in the reply is acknowledged. Claims 8-10, 14, 20-21, 26 are withdrawn from consideration. The traversal is on the ground(s) that retaining and examining the species of Fig.1 and Fig. 10 in the present application will work an economy for the benefit of both the Patent Office and the applicant. This is not found persuasive because applicant supposed to point out errors in restriction requirement not the reasons for benefit of economy.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

> Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.
>
> When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).
>
> In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claim(s) 27 is rejected under 35 U. S. C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 27 defines an image processing program embodying functional descriptive material. However, the claim does not define a computer and computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" - Guidelines Annex
"An image processing program stored in a computer readable medium execute by a computer..." is suggested.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims1, 2,5-6,17,18, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis et al US5661521 in view of Tamura US5999215.

With reference to claim 1, Curtis '521 disclose an image pickup system which comprises, noise estimating means for estimating an amount of noise contained in a digitized signal (Smear estimation mean, column 2, line 62) from an image pickup element composed of an array of a plurality of pixels, either for each pixel or for each specified unit area comprising a plurality of pixels ((CCD (charge coupled device) imagers are commonly used to capture digital images. The

CCD imager is a solid state device which consists of an array of photosensors coupled with a CCD shift register, column 1, line 10. Photosensors are array of pixels); correction means for correcting the amount of noise estimated by the noise estimating means (means for adjusting the image data corresponding to smear estimation and dark level correction, column 2, line 64. smear and dark current both are noises.) and noise reducing means for reducing the noise in the signal based on the amount of noise corrected by the correction means (smear within image sensors can be reduced by effective use of gain and dark correction data that has been determined during calibration periods. Referring to FIG. 1, which is a block diagram of the preferred embodiment of the present invention, the image data processing path includes active pixel smear correction. Two types of image data correction are used to obtain the final smear corrected data. As shown in FIG. 1, dark correction 30 and gain correction 60, column 3, line 66.). But Curtis '521 does not disclose shooting condition estimating means for estimating a shooting condition when an image based on said signal is acquired; correction means for correcting the amount of noise estimated by the noise estimating means based on the shooting condition estimated by the shooting condition estimating means.

Tamura '215 discloses FIGS. 3, 4 and 5 are so-called program diagrams showing the states of setting exposure control parameters respectively in the program modes for different presumed shooting conditions. FIG. 3 shows a portrait mode which is arranged by setting exposure control parameters suitable for portrait shooting. FIG. 4 shows a sport mode which is arranged by setting exposure control parameters suitable for shooting an object moving at a high speed like in the case of a sport. FIG. 5 shows a landscape mode which is arranged by setting exposure control parameters suitable for shooting a landscape or scenery, column 5, line 50. It is

same as estimating the shooting condition. A high quality photograph can be obtained after smear correction based shooting condition.

Therefore, it would have been obvious to one skill in the art at the time invention was made to implement Tamura '215 teaching into Curtis '521 system for noise correction and noise reduction based on shooting conditions because a high quality photograph can be obtained after smear correction based on shooting condition.

With reference to claim 2, Curtis '521 discloses an image-sensing device, column 2, line 57. But Curtis '521 does not disclose a color filter arranged on a front surface of the image pickup element and separating means for separating the signal that is output from the image pickup element into signal for each color filter.

Tamura '215 discloses a color separation circuit 12 is arranged to separate the picked-up image signal into R (red), G (green) and B (blue) color signals, column 1, line 50. Therefore, a color filter inherently in front of image sensor 6 for colors filtering. Without color filter it will be a black and white image pickup device. But color separating circuit 12 in fig. 2 show it is a color pickup device. Color separating will allow a better color balancing process.

Therefore, it would have been obvious to one skill in the art at the time of invention to implement Tamura '215 teaching into Curtis '521 system for a color filter arranged on a front surface of the image pickup element and separating mean for separating the signal that is output from the image pickup element into signal for each color filter because color separating will allow a better color balancing process.

With reference to claim 5, Tamura '215 discloses that fig. 3, 4 and 5 are so-called program diagrams showing the states of setting exposure control parameters respectively in the program modes for different presumed shooting conditions, column 5, line 50. It is same as image acquire based on exposure information.

With reference to claim 6, Tamura '215 shows in fig. 1 a focus control part 19c for focus position estimation. Furthermore, Fig. 3 is a portrait shooting. Shooting-subject distribution estimation means, based on exposure information, is an overall signal (fig 3). Furthermore, Tamura '215 discloses FIGS. 3, 4 and 5 are so-called program diagrams showing the states of setting exposure control parameters respectively in the program modes for different presumed shooting conditions. FIG. 3 shows a portrait mode which is arranged by setting exposure control parameters suitable for portrait shooting. FIG. 4 shows a sport mode which is arranged by setting exposure control parameters suitable for shooting an object moving at a high speed like in the case of a sport. FIG. 5 shows a landscape mode, which is arranged by setting exposure control parameters suitable for shooting a landscape or scenery, column 5, line 50. Overall estimation for shooting condition is based on focusing position estimation, means and shooting-subject distribution estimation means.

With reference to claim 17, subject matter disclosed in claim 17 has been previously discussed in claim 5.

With reference to claim 18, subject matter disclosed in claim 18 has been previously discussed in claim 6.

With reference to claim 27, subject matter disclosed in claim 27 has been previously discussed in claim 1.

Claims 3,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis et al US5661521 in view of Tamura US 5999215 in further view of Prentice et al US7064785.

With reference to claim 3, Curtis '521 in view of Tamura '215 discloses an image pick up system. Curtis '521 discloses a noise estimating means (Smear estimation mean, column 2, line 62.) But Curtis '521 in view of Tamura '215 does not discloses parameter calculating means for calculating parameters based on at least one type of information selected from among a signal value level of the signal, a temperature of the image pickup element, a gain for the signal, and a shutter speed during shooting; and noise amount calculating means for calculating the amount of noise based on the parameters calculated by the parameter calculating means.

Prentice '785 discloses calculating parameter means for calculating parameter (Fig. 1, item 24) based on the signal value level of the signals (fig. 1, item 20 and 22, "counts") and noise amount calculating means for calculating the amount of noise based on the parameters calculated by the parameter calculating means (Fig.1, item 26). Parameter calculating mean based on signal value level will give more accurate noise estimation. Noise estimation will be used to reduce noise in an image signal.

Therefore, it would have been obvious to one skill in the art at the time of invention to implement Prentice '785 teaching into Curtis '521 system in view of Tamura '215 for parameter calculating means for noise estimation because noise estimation will be used to reduce noise in an image signal.

With reference to claim 15, subject matter disclosed in claim 15 has been previously discussed in claim 3.

Claims 4,16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis et al US5661521 in view of Tamura US 5999215 and in further view of Ohta US7158183.

With reference to claim 4, Curtis '521 in view of Tamura '215 discloses an image pick up system and overall estimating the shooting condition mean as explained above in claim 2. But Curtis '521 in view of Tamura '215 does not disclose regional estimate means for estimating the shooting condition for each region.

Ohta '183 discloses that FIG. 14 is another example of an area for light metering using destructive type image sensor. In this case, one of five selection areas 902 in FIG. 12 is further divided into three areas. The upper and lower part are used for detecting signals for light metering, and the central part is used for detecting signals for focus detection. With constructing like this, when average signal output from upper and lower blocks for light metering reaches to appropriate signal level, the calculation of light metering is immediately started, and, at the same time, the calculation for focus detection can be started based on the signal read out from each

pixel in the central area for focus detection. This is regional shooting condition estimation. Overall estimating means and regional noise shooting condition estimation will provide a more accurate shooting condition estimate for noise estimation means. Noise estimation will enable correction means to correct an image signal accurately.

Therefore, it would have been obvious to one skill in the art at the time of invention to implement Ohta '183 teaching into Curtis '521 system in view of Tamura '215 for regional estimation mean for estimating the shooting condition for each condition. Overall estimating means and regional noise shooting condition estimation will provide a more accurate shooting condition estimate for noise estimation means. Noise estimation will enable correction means to correct an image signal accurately.

With reference to claim 16, subject matter disclosed in claim 16 has been previously discussed in claim 4

Claims 7,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Curtis et al US5661521 in view of Tamura US 5999215 in further view of Sugimoto US 7242434.

With reference to claim 7, Curtis '521 in view of Tamura '215 discloses an image pick up system. Furthermore, Tamura '215 discloses shooting condition estimating means as explained above. But Curtis '521 in view of Tamura '215 does not disclose judging, based on exposure information, whether or not the shooting condition relating to an overall signal when an image based on the signal is acquired is of night view shooting.

Sugimoto '434 discloses that in step 116 the shooting mode is judge, column 11, line 49. Furthermore, Sugimoto '434 discloses that operation section 60 includes a variety of shooting modes, such as automatic photography (autofocus, auto-exposure, etc.), manual photography, continuous shooting, action shooting, portrait shooting, landscape shooting, night shooting, flash photography and the like, column 8, line 20. A shooting mode judging will allow shooting condition estimation to estimate shooting condition for night view shooting. Noise estimation will have an accurate estimation to reduce the noise.

Therefore, it would have been obvious to one skill in the art at the time of invention to implement Sugimoto '434 teaching into Curtis '521 system in view of Tamura '215 for judging the night view shooting because noise estimation will have an accurate estimation to reduce the noise.

With reference to claim 19, subject matter disclosed in claim 19 has been previously discussed in claim 7.

Allowable Subject Matter

4. Claims 11-13, 23-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tnaka US 20030133033 discloses an image-taking lens system includes an image-taking lens, a lens driving control part for driving and controlling the image-taking lens, a reading part for reading information from a storage medium in which a plurality of pieces of lens control information according to conditions of shooting are stored.

Watanabe 6545775 discloses that In the image pickup system, data of shooting conditions previously used is recorded in the nonvolatile memory 20 of the image pickup unit 1. The previous shooting conditions remain unchanged unless the CPU unit 3 changes them.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asif Khokhar whose telephone number is (571) 270-3221. The examiner can normally be reached on Monday- Friday 7:30am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Ho can be reached on 571 272 7365. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

***

TUAN HO
PRIMARY EXAMINER